USAFA Cadet Homepage

Institute for Information Technology Applications (IITA)

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An Electronic Portal for the
U.S. Air Force Academy's Cadet Wing

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Introduction

The USAFA Cadet Homepage is the result of an Institute for Information Technology Application (IITA) research effort to develop a single, consolidated access point for cadet information. This information includes individual course schedules, status of current operations, weather, and links to a full range of electronically available resources.

Original research on this capability began in October 1999 under the title Cadet Personalized Educational Gateway (CPEG). In August 2002, IITA began implementation of a prototype that would evolve into fully operational system which would be called the Cadet Homepage. The first prototype was deployed in January 2003 and a full deployment for the Class of 2007 occurred in August 2003. The entire Cadet Wing began use of the Cadet Homepage in February 2004 and, by August 2004, the Cadet Homepage had become the primary information resource for the entire Cadet Wing.

While this effort was led by IITA, the project team included dozens of individuals from the Dean of the Faculty, 34 TRW, 10th Communications Squadron, and Athletics Department. IITA provided management and technical oversight and funding for some required basic research as well as initial server hardware. However, the IITA funding was leveraged to solicit buy in and support from across USAFA mission elements and their investment was matched many fold by funding from HQ USAFA, 34TRW, DF, and 10CS to develop the full operational capability and provide robust operational server hardware.

At present, the Cadet Homepage was become fully integrated into cadet life and Cadet Wing operations. Operation of the Cadet Homepage is well in the hands of the 10th Communications Squadron and management is being transitioned from the IITA Project Officer to the USAFA Chief Information Officer's staff and the 10th Communications Squadron. However, IITA involvement in the project continues primarily in terms of providing basic research to enhance functionality and to develop spin-off capabilities like a Faculty/Staff Homepage and a Course Web Site Template.

This report documents the progress made to date on the Cadet Homepage project. Specifically, we enumerate the purpose and goals of the project, summarize the project team organization, review the capabilities developed, discuss the basic research involved, present some cadet feedback and assessment findings, describe the timeline of major events, review funding issues, overview the transition to operations, outline future directions, and suggest some other Air Force applications of this technology.

Purpose and Goals

The purpose of the Cadet Homepage project has always been to improve cadet time management effectiveness and efficiency via information technology while also enhancing their abilities to understand and utilize such technology.

In order to accomplish this purpose, the Cadet Homepage Project Team established a number of goals which served to define the project. These goals were:

- Provide personalized course schedule information to each cadet with direct links to their courses' web-based resources.
- Provide current status information to include command alerts (Force Protection Condition, Homeland Security status, Information Protection condition), command notices, airfield operations status, uniform of the day, Mitchell Hall menus, weather conditions, and Checkpoints.
- Provide electronic calendar tools to promote time management skills.
- Provide a full-range of functionally organized hyperlinks to electronically available information resources.
- Provide a comprehensive, content-based search mechanism for locating information on the Cadet Homepage, USAFA web sites, and USAFANET shared drives.
- Provide a monitored announcements/bulletin board capability for any user to post relevant information.
- Provide direct access to primary external information resources such as the Air Force Portal.
- Provide consolidated access to email, organizational calendars, organizational web sites, and other key resources.
- Provide simple, yet robust, tools for authorized users to manage and maintain dynamic content with little or no training
- Provide on-line help resources so users can easily utilize all features of the Cadet Homepage
- Provide an automated feedback mechanism to support the continued refinement of the capabilities.

At the current time all of these goals have been accomplished and usage of the Cadet Homepage averages between 16,000 and 25,000 unique sessions every day. However, research and development continues to refine the effectiveness and efficiency of these capabilities and to more tightly integrate them with other USAFA resources such as the Cadet Administrative Management Information System (CAMIS).

Project Team Organization

The Cadet Homepage Project Team was a cross-mission element effort from the very beginning and the project has benefited greatly from the many and varied contributions of each mission element and the individuals involved. The list below identifies the key organizations and individuals included on the Project Team. However, even this long list is not exhaustive and there have been many others who have contributed to the effort in a variety of capacities.

- IITA
  - Gen (ret) McCarthy (Director)
  - Dr Steve Hadfield (Project Manager)
  - Lt Col Jim Harper (Managing Dir)
  - Lt Col Gwen Hall (Project Manager: Aug 02 – Dec 02)
  - Dr Peg Halloran (Project Manager: Oct 99 – Jul 02)
  - Col Rolf Enger
  - Lt Col Tony Aretz
  - Sharon Richardson
- 34 TRW
  - Maj Ovard
  - Maj Philip Winslow
  - Maj Ragsdale
  - Barry Harbor
  - Bill Sheldon
  - Maj John Bernhart
  - Lt Col Cornelius
  - Bill Sheldon
  - Lynn Hoppes
- DF
  - Larry Bryant
  - Carolyn Dull
  - Maj Hal Taylor
  - Doug Johnson
  - Char Moss
- Cadet Wing
  - C1C Matthew Russell
  - C1C Todd Tyler
  - C1C Eric Carney
  - C1C Tyson Hoffine (Wingtips)
  - C1C David Brandt
  - C1C Dyan Medina
  - C3C Mike Tanner
  - CS 453/454, CS 364, BS 473
  - CS 110, CS 220, BS 331, BS 495
- 34TRW/AH
  - Jeff Heidmous
  - Lt Col Ivan Merritt
- 10 CS
  - Arlene Gulley (10CS Project Officer)
  - Neland North
  - Joe McKeehan
  - Fred Layberger
  - Capt Keel Ross
  - Loretta Dotterer
  - & many others …
- Oracle
  - Jim Dalrymple
  - Don Vollmer

Capability Developed

The Cadet Homepage is a single consolidated and integrated web-based access point for the full range of cadet information. U.S. Air Force Academy cadets access the Cadet Homepage from within the USAFANET local area network via the address: http://homepage/cadet. Figure 1 below illustrates the how the main My Home tab of the Cadet Homepage currently appears.
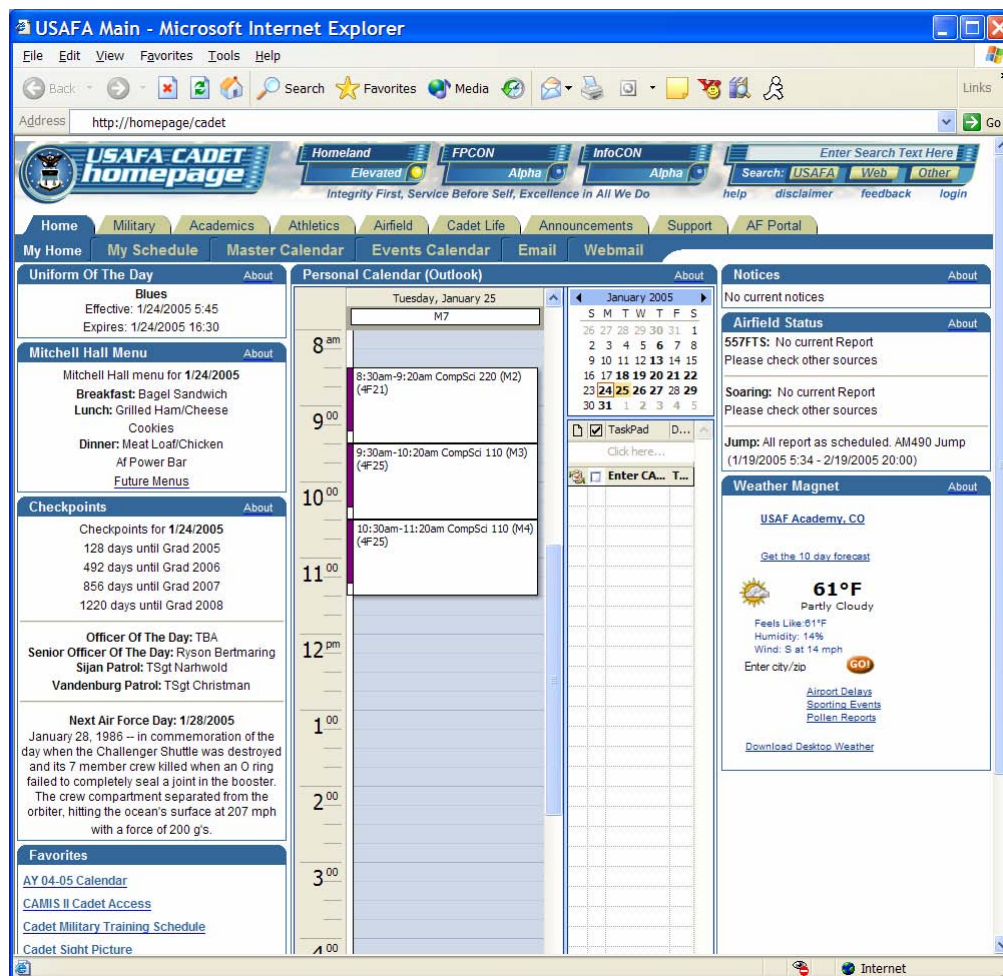

Figure 1: Screen Shot of the Cadet Homepage

The capabilities and features of the Cadet Homepage currently include the following:

- Centralized Access Point
- Dynamic Content Managed by Authorized Users via Forms
  - Command Alerts, Notices, Airfield Status, Weather, UOD, Menus, Checkpoints
- Personal Calendar with Links to Course Web Sites
- Integrated Content-Based Search Engine
- CAMIS Integration
- Functionally-Organized Content
  - Decentralized Content Management and Maintenance
- Announcements
- Air Force Portal Integration
- On-Line Feedback

Figure 2 below illustrates the breadth of information resources accessible via the Cadet Homepage.
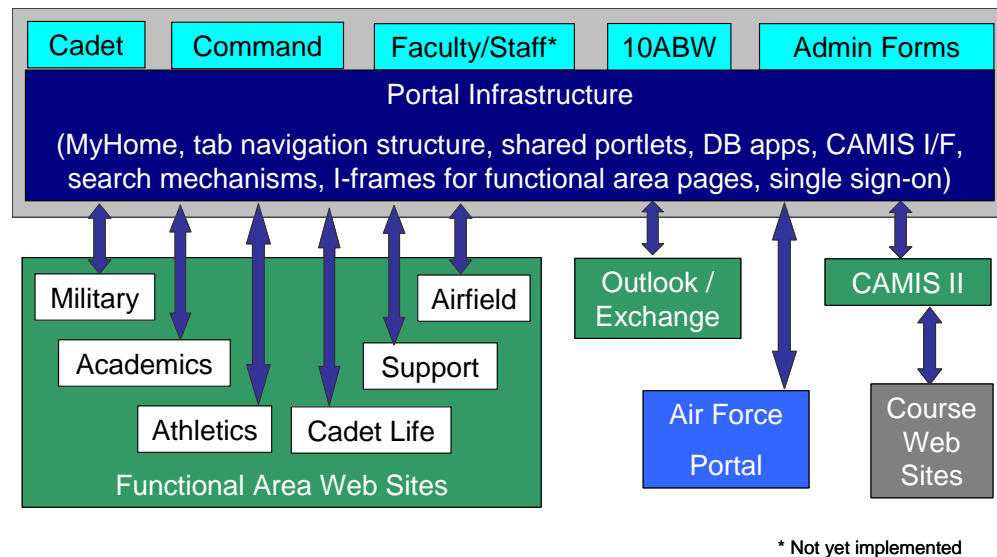
Figure 2: Functional Overview of the Cadet Homepage

The current implementation of the Cadet Homepage uses the Oracle 9i Applications Server product suite making primary use of the Portal and UltraSearch applications in that suite. The operational production server is a Sun V880 four-processor computer funded by HQ USAFA and acquired and maintained by the 10th Communications Squadron. A test and backup server is provided by an IITA-owned SunFire 280R two-processor server. Development and maintenance of the Cadet Homepage software is accomplished on a 10CS-owned SunFire 6500 server.

Basic Research Aspects

Several objectives of the Cadet Homepage project could not be readily achieved with the technology that existed at the time of its development. Specifically, these objectives involved the inclusion of individualized personal calendars with synchronized course appointments that hyperlink to course and lesson web sites as well as securely authenticated users without the use of a distinct login for the Cadet Homepage. Both of these objectives were critical for the project and required extensive research and the development of new software as well as the use of emerging new commercial technology. We had basic research funding from IITA to help accomplish these objectives. In this section we document the basic research accomplished during this project to satisfy these objectives to include what has been accomplished and what remains pending further investigation.

Personal Calendar Feature

Perhaps the most important objective of the Cadet Homepage project was the inclusion of a personal calendar on the main view which is individualized for each cadet and shows their course schedule with hyperlinks to course and lesson web sites as well as other obligations. The initial approach was to create this personal calendar as a custom portlet database application tied to the Cadet Administrative Management Information System (CAMIS) database. CAMIS is the authoritative source for cadet schedules and as such is a logical and efficient host for the personal calendars. However, a CAMIS-based personal calendar would require some extensive software development and would replicate much of the functionality existing in current commercial-off-the-shelf products such as Microsoft Outlook. This would result in extensive costs to develop and maintain this custom capability. A better solution would be to decentralize the calendar processing to the client machines. In addition, the CAMIS approach would be server-based and would require an extensive server hardware infrastructure to support, whereas Microsoft Outlook is client-based and would decentralize the calendar processing. Furthermore, the Air Force as well as DoD uses Microsoft Outlook as a common mail client and, in deed, many Air Force and DoD organizations use the rich calendar capabilities of Outlook for complex scheduling tasks. After extensive research of the two approaches, the Cadet Homepage research team decided to pursue the use of Outlook personal calendars to provide the needed functionality for the Cadet Homepage. The theory was that this would provide the most cost effective solution and best prepare our cadets for active duty.

Use of Microsoft Outlook Calendars

However, in order for the Outlook personal calendar approach to be viable, several significant technological challenges had to be overcome. First, we had to be able to view the Outlook personal calendars directly from within the Cadet Homepage primary web page. Second, we had to bring the course appointments in from the authoritative data source (CAMIS database) and keep them synchronized with any changes that occurred after the import. Third, we had to be able to hyperlink the course appointments to the appropriate course and lesson web sites in such a way that sites could change but the links would still take the user to the latest site. Finally, we had to make the entire mechanism simple and easy to use. Most cadets were not accustomed to using an electronic personal calendar and they would only change to do so if it were very easy to use and provided significant benefit.

Embedding Outlook Calendars in Web Pages

The first challenge of integrating the Outlook personal calendars into the Cadet Homepage main web page was accomplished by locating and adapting an ActiveX control that could directly interface with Outlook. This control was embedded with an HTML portlet in the Cadet Homepage using an <OBJECT> HTML tag. The use of relative paths within the ActiveX control parameters allowed us to being up the personal Outlook calendar of the individual currently logged into the client machine just as we needed for this functionality. The one draw back to this approach is that the ActiveX control relies on the use of the Microsoft Internet Explorer browser and will not work with most other browsers. However, the Air Force Academy has a site license for the Internet Explorer browser and it was already the de facto standard browser for the Academy.

Synchronizing Course Appointments between CAMIS and Outlook

The next challenge was to bring the course and lesson appointment data from CAMIS as the authoritative data source into the Microsoft Outlook and Exchange infrastructure. This sort of cross-calendar synchronization is actually a much tougher problem than it would appear on the surface. Our review of commercial products revealed that no company has fully resolved the problem with a currently available product. This includes Microsoft with their Office product (which includes Outlook) and Oracle with their Office Collaboration Suite product. The closest commercial solution that we found was from Infotriever which can synchronize and update appointments in Outlook based upon data from an authoritative data source. However, the Infotriever solution currently requires the use of their servers outside of the corporate firewall. Furthermore it is costly (relative to Academy IT budgets) and would significantly stress limited off-base bandwidth during peak calendar synchronization time periods like the beginning of semesters. Hence for reasons of security, cost, and bandwidth, the Infotriever solution was not currently viable.[1]

Another approach that we investigated were use of XML (eXtensible Markup Language) data transfers between CAMIS and the Microsoft Exchange mail/calendar servers. However, at the time, the Academy was using Exchange Version 5.5 which did not readily support XML and migration to the XML-enabled Version 2003 did not occur until August 2004. Hence this approach may be viable in the future but was not reasonable during the time this issue was being explored.

The approach that was taken was two-fold. The near-term solution was achieved by writing a small custom application in Visual Basic using COM (Component Object Model) objects to interface with Outlook. The application was downloaded on to the client computers by the users using a link on the Cadet Homepage. It could then be run stand-alone by the user on their client computer. The interface allowed the user to specify which course they had and during which period(s). The application would use this information together with a common M- and T-day shared calendar that they would have copied to their computer to specify all the appointments for that course. The process would be repeated for each course in their schedule and the entire activity would take under two minutes to complete. Updates to ones schedule

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[1] We did investigate alternative configurations such as hosting Infotriever on a local server and the company was amenable to this approach but it would require some significant software development on their side and some non-trivial training and additional manpower for the Academy.

could be accommodated by using the application to delete the old meeting time and then add in the replacement course/meeting time. The capability worked well and was appreciated by the user base, however, there were some technical deployment issues on client computers with older versions of Windows and it was a bit labor intensive with corresponding potential for errors.

My Schedule Feature

In August 2004, we deployed an enhanced mechanism for synchronization of course/lesson appointments from CAMIS to Outlook. The new mechanism is call My Schedule and is provided to the users of the Cadet Homepage via a web-based sub-tab on the My Home tab of the Cadet Homepage. When a user visits the My Schedule tab, they are asked to click the Customize link and then enter their social security number which is subsequently held securely on their computer via an encrypted cookie. The My Schedule tab reads this cookie and uses it to retrieve their course schedule which is then presented on the tab via HTML. Each course is presented as a hyperlink which may be followed by the user directly to the course web site. Furthermore, there are check boxes next to each course appearing on the cadet's calendar. By leaving these boxes checked and then clicking on the Download to Outlook button, a file is created with iCalendar appointments for each selected course. The user is then directed to save this iCalendar appointment file to their computer and then import it from within Outlook (a three click process). Hence the entire semester's calendar can be migrated in one step. For updates to a migrated schedule, existing appointments are categorized and thus easily deleted from within Outlook and the selective options on the download accommodate the subsequent import of just the updated course(s).

The advantages of this approach are that it leverages the iCalendar format which is an existing calendar appointment interoperability standard. Hence no modifications were needed on the client-side and only a small server application was needed to service the web page and generate the iCalendar file. On the downside of the approach, it does still require involvement of the user. This would be significantly mitigated if Microsoft Outlook would directly import all iCalendar appointments directly by simply opening the iCalendar file.[2]

Further Investigation of Course Appointment Synchronization

While the My Schedule feature in the Cadet Homepage has already proven to be a workable and user appreciated solution to the calendar synchronization issue, we are still investigating better solutions that require even less user involvement. Primary alternatives under consideration are an XML-based solution now that Microsoft Exchange 2003 is in place at the Academy and variations on the Infotriever solution.

Embedding Hyperlinks in Course Appointments

The last aspect of the calendar synchronization issue was the establishment of hyperlinks within the course appointments to the course's web pages. Fortunately, Outlook

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[2] Currently, Outlook only imports the first iCalendar appointment (and ignores the rest) when a multi-appointment iCalendar file is opened. This is a recognized deficiency in Outlook which we are requesting that Microsoft resolve.

appointments already supported the inclusion of hyperlinks within their appointment description text fields. So the challenge remaining was to keep all these appointment hyperlinks, which would be distributed across thousands of client computers, pointed to the correct places. To accomplish this task, we developed a two link approach. The hyperlinks in the appointments would link to a query application hosted in CAMIS. Parameters within the link would specify the course name, number, and lesson. The application in CAMIS would then look up the latest-and-greatest URL (Uniform Resource Locator – or web page address) for that course's web site which was added as a new attribute in the CAMIS database and then redirect the user automatically to the course's web site (or to an informative error page if the course does not have a web site). Furthermore, the course URL attribute in CAMIS included information that on the course's web site to include whether there were separate pages (or bookmarks within a common page) for each distinct lesson. If there are distinct pages/bookmarks for the lessons, the CAMIS-based application redirects the user to that appropriate lesson's page/bookmark. In addition, we developed a new application on CAMIS to maintain the course URL attribute. The design of this mechanism is especially nice in that any updates to course web sites are immediately available to any users following those links.

Authentication

The second major objective of the Cadet Homepage deals with authentication of user. The concern here is to be able to know with confidence which user is accessing the Cadet Homepage from a particular client. The authentication issue is a key infrastructure feature of the Cadet Homepage that is prerequisite to a number of other end user features. These end-user features include the ability to customize one's view of the Cadet Homepage to highlight the most relevant information for the user. It also includes the ability to provide deep links into the CAMIS system without the need for distinct logins to each functionality which exist today. Furthermore, a robust authentication based upon initial network logins would streamline access to time sensitive data maintenance such as command alerts and would allow customized delivery of time sensitive data to only the users that need it.

While the authentication issue is well studied, the Cadet Homepage requires two additional twists which are not well supported by the current technology base. Specifically, we needed a single sign-on authentication that would apply for all accessed applications and that would not require a distinct login but rather rely upon the authentication credentials supplied to the Active Directory system upon initial network login. Such a capability was not available in the current technology base during most of the period of the Cadet Homepage investigation. Hence we worked closely with both on-site and corporate Oracle technical support to articulate our needs and concerns which directly influenced the productization of an experimental custom authentication capability. This new capability became available in Spring 2004 with the Oracle 10g product line and we have been experimenting over the last few months. Due to the complexity of the capability and the need to upgrade the CAMIS infrastructure to complete the capability, we are still several months from realizing this capability. However, the approach show promise and we are truly on the cutting edge of applying this new technology. This will be a primary focus of continued investigation for the next 6-12 months.

Cadet Involvement and Feedback

Throughout the entire Cadet Homepage project, U.S. Air Force Academy cadets have been intimately involved. This involvement includes, but is not limited, to the following:

- Defining necessary links and capabilities such as those inherited from the Wingtips web site conceived, implemented, and maintained by then-Cadet, now 2nd Lt Tyson Hoffine.
- Suggesting additional and enhanced capabilities either through their roles in command positions in the Cadet Wing or via the on-line feedback form.
- Managing dynamic content relevant to cadet activities
- Scientific studies of cadet reactions to using the Cadet Homepage

One example of this latter category is a study accomplished by Lt Col Tony Aretz in the spring of 2003. This study surveyed 65 cadets using an early prototype of the Cadet Homepage.

While this study provided a great deal of useful information and specific suggestions that we used to greatly improve the Cadet Homepage, two specific results are shown in Figures 3 and 4 below. These results indicate that, even in its earliest manifestations, the Cadet Homepage was viewed by cadets and a useful and time saving capability.
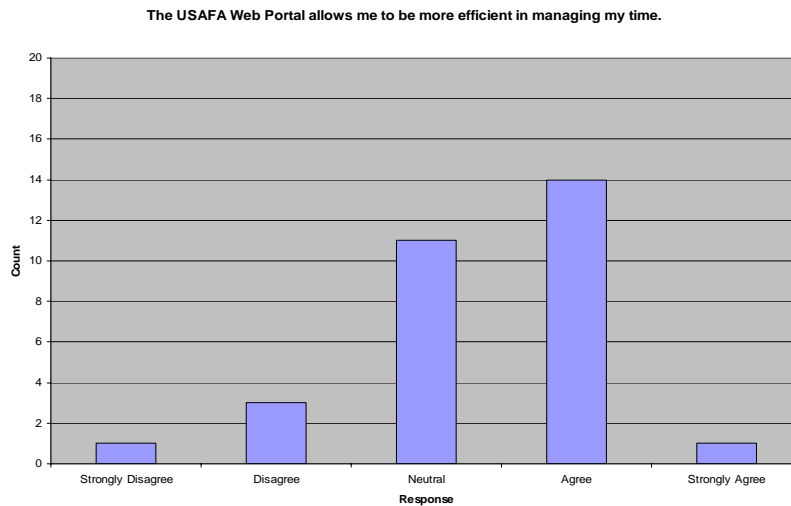
Figure 3: Results of Spring 2003 Cadet Survey (Part I)

The USAFA Web Portal is useful.
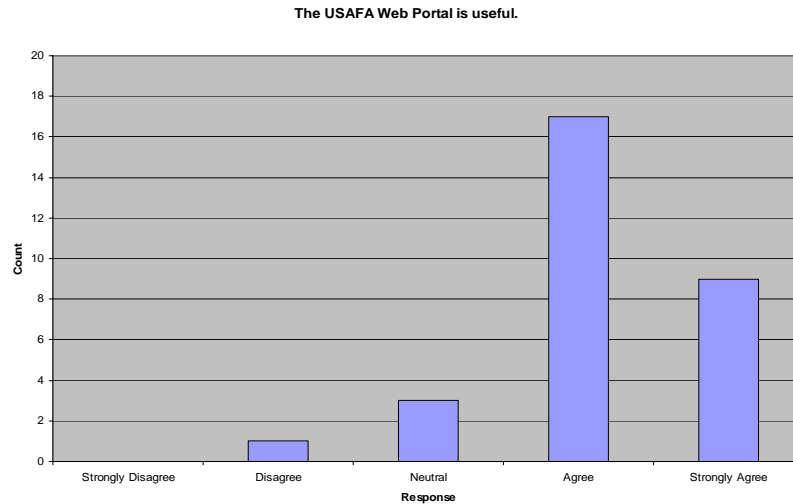
Figure 4: Results of Spring 2003 Cadet Survey (Part II)

As for the management of dynamic content by cadets, they have enthusiastically embraced this responsibility and consistently post and update information on a daily basis. Specifically the following information is currently maintained by the indicated cadets:

- USAFA Cadet Command Post personnel maintain the uniform of the day, command post notices, and command alerts (FPCON, InfoCON, and Homeland Security condition). They also ensure that the active duty airfield operations supervisors maintain the airfield operations status information.

- Fourth Class cadets maintain the Mitchell Hall menus; Officer-of-the-Day (OD), Senior OD (SOD), and dorm patrol assignments; Air Force Day; and special count-down Checkpoints information.

- Cadet Wing Staff personnel can post notices and approve and post announcements submitted by any user.

- Cadet Mike Tanner serves as webmaster for the Cadet Life tab managing and maintaining the links and information on that page.

Timeline of Major Events

The USAFA Cadet Homepage has been several years in the making. The foundational research and studies were accomplished by Dr Peg Halloran under the name of the Cadet Personalized Educational Gateway (CPEG) project during the October 1999 to July 2002 timeframe. Most all of the primary capabilities and features of the Cadet Homepage were researched and defined during this effort. A full report of this effort can be found as the IITA CPEG report.

In August 2002, commercial portal and supporting technology had matured to the point where development of a prototype capability could commence. At this point, Lt Col Gwen Hall took over management of the project and began development of the first operational prototypes. By January 2003, the first operational prototype was available and we began test usage with small groups of cadets; typically a few sections of selected courses. During this time, Lt Col Tony Aretz conducted surveys of the cadets to determine both the utility of the capability and ways to enhance its effectiveness.

In December 2002, Lt Col Hall was reassigned to an Air Staff position in the Pentagon and Dr Steve Hadfield moved from his role as technical coordinator to become the project manager.

By May 2003, the project team had gained a fairly solid understanding of what capabilities were needed. We had also gained support of the USAFA command leadership including the funding needed for further development. From May 2003 through early September 2003, we had one full time and one part time Oracle consultant working on the project and great progress was made developing a robust capability. During this time, IITA also procured a SunFire 280R two-processor server which would serve as our initial operational hardware and later as our testing and backup operational server.

In August 2003, we deployed a robust and comprehensive prototype to the entire incoming Class of 2007. During the period from August 2003 through December 2003, we further refined this prototype. We also received funding support from HQ USAFA to acquire the Sun V880 four-processor server which would serve as our operational hardware.

By January 2004, we had the hardware and software in place to support the entire Cadet Wing and gained approval from the USAFA Command Leadership to deploy what became know as the USAFA Cadet Homepage. During the period of February to May 2004, the Cadet Homepage ran in parallel with other existing operational information mechanisms. As the command leadership, cadet users, and project team members gained confidence in and familiarity with the Cadet Homepage, we set the stage to move from a prototype implementation to a fully operational system which occurred in August 2004.

The operational version of the Cadet Homepage deployed in August 2004 included a number of significant enhancements to include full help and feedback mechanisms, the My Schedule tab for integrating personal course schedules more seamlessly between CAMIS and Microsoft Outlook, the inclusion of Macromedia Flash for the Command Alerts header, and comprehensive performance monitoring tools. Despite some early glitches with the use of Flash and some web cache overflow problems that resulted in about a half dozen server outages, the operational version stabilized by October 2004 and became the primary information distribution tool for the Cadet Wing.

With some additional enhancements and refinements implemented in December 2004, we now have a fully operational and stable Cadet Homepage. However, continued development is still underway which includes a migration to Oracle 10g Application Server upon which we can integrate user authentication tied to the Windows Active Directory authentication mechanism. This will allow the Cadet Homepage to automatically determine the identity of each user and enable each user to have a customized personal view of the Cadet Homepage. This mechanism will also facilitate spin-off projects such as faculty and staff homepages. Other subsequent development underway is documented in a later section of this report.

Transition to Operations

While the Cadet Homepage is now a fully operational system from the users' perspective, its operations, maintenance, and management are still in the process of transitioning from an IITA research project to a fully USAFA-run operational system. In reality, much of the day-to-day operations and maintenance has been transitioned and the full transition plan has been well-staffed through the appropriate organizations. However, we are waiting to finalize transitional arrangements until a permanent Chief Information Officer has been selected and established as it is this office that will likely assume the primary management responsibilities for the Cadet Homepage.

When the permanent CIO has been established, fully briefed on the Cadet Homepage, and has approved the transition plans, we anticipate formalizing the arrangements with a Memorandum of Agreement between the CIO, IITA, USAFA mission elements, and the 10th Communications Squadron. A Service Level Agreement with the 10CS will augment this MOA and detail specific arrangements.

While the final transition arrangements for Cadet Homepage O&M are not established, we anticipate that they will look very close to what follows.

Figure 5 below details the anticipated organizational structure for the O&M of the Cadet Homepage. In this diagram, Command Authorities including the Superintendent, Commandant, Dean, and Athletics Director would provide mission oversight providing whatever direction they deem appropriate. The CIO would chair a supervisory oversight working group to set specific policy and direction for the Cadet Homepage. This working group would consist of mission element representatives providing functional area expertise and content management (functional cybrarian role). Also on the working group would be a Lead Cybrarian and the software development manager. The Portal Manager (aka Cadet Homepage Project Manager) would report to the CIO and would manage the details of the Cadet Homepage.

The Supervisory Oversight Working Group would provide direction to the Implementation Team which consists almost exclusively of technical experts in the 10th Communications Squadron and their contractor support.

Of particular note are the "cybrarian roles"[3]. Specifically, we foresee three varieties of cybrarian; functional, technical, and lead. The Functional Cybrarians would consist of functional area experts from the various contributing mission elements. These individuals would monitor the content and links associated with their functional area and maintain them as needed. The Technical Cybrarian would monitor all content for conformity with applicable technical regulations and requirements as well as ensuring that all links are alive and current. the Lead Cybrarian would oversee all content for both currency and relevance.

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[3] The term, "Cybrarian" was coined to describe a content and information manager for the Cadet Homepage.
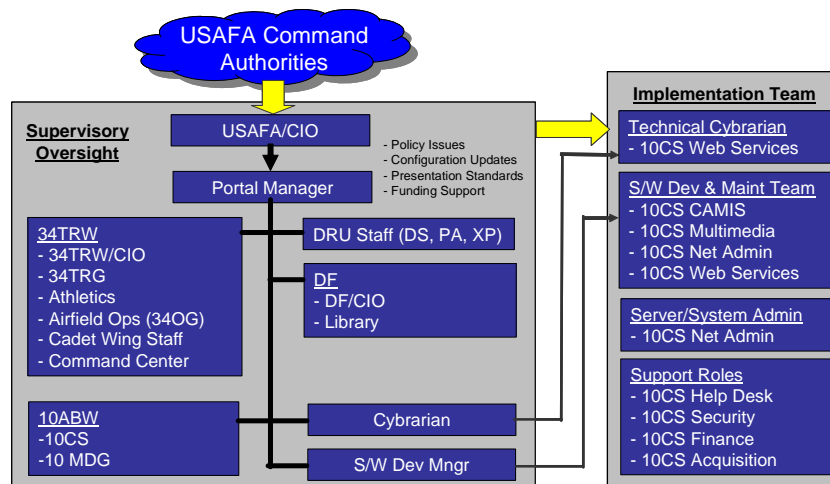
Figure 5: Proposed Cadet Homepage O&M Organizational Structure

Other Air Force Applications

While the USAFA Cadet Homepage was developed specifically for the U.S. Air Force Academy, most all of its features could be applicable to other Air Force educational organizations such as Air University, Defense Language Institute, Undergraduate Pilot Training, Undergraduate Space Training, and many other such organizations.

Minimal added infrastructure would be needed for these organizations to adopt the Homepage capability. In addition to the personal computers and networks already in place at such agencies, the only other significant hardware and software would be a server running Oracle 9iAS Applications Server (which is available at no additional cost under an Air Force Enterprise license). Technical support would also be required for any customizations of the software.

Future Directions

While significant progress has been achieved with the Cadet Homepage project and it has evolved from a research activity into a fully operational system, there are still some additional activities underway. These activities involve migrating the operations and maintenance of the system fully over to USAFA and 10CS as well as some additional research and development on further enhancements to the capabilities.

In regards to the operations and maintenance, we are waiting upon appointment of a permanent USAFA Chief Information Officer with staff to finalize the arrangements and agreements for sustainment of the Cadet Homepage. This process will culminate in a finalized Service Level Agreement for support from the 10th Communications Squadron as well as a Memorandum of Agreement between the USAFA CIO, 10CS, and the USAFA mission elements.

Continued research and development of the Cadet Homepage includes the following enhancements:

- Single sign-on authentication tied to the USAFANET Active Directory logon
- UltraSearch indexing of commonly accessible information on the USAFA shared drives
- Ability for users to individually customize their views of the Cadet Homepage
- Status displays in Mitchell Hall & bus stops with airfield operations status, weather, UOD, and notices
- More seamless CAMIS-to-Outlook calendar synchronization
- Additional views of the Homepages customized for 34TRW staff, faculty, and 10ABW
- Tighter integration with CAMIS providing "deep links" into CAMIS functions and passing user authentication data to avoid distinct logins.
- Integrate weather display from the USAFA High Wind Alert System for training condition calculations and weather alerts

Finally, I would also recommend notifying other potentially interested Air Force organizations about the USAFA Cadet Homepage in case they would want to adapt a copy of it to meet their needs. Care of course should be taken to not duplicate capabilities provided by the Air Force Portal.

Conclusion

The USAFA Cadet Homepage project is an excellent example of how new and innovative ideas conceived and supported by the IITA research community can be initiated with IITA basic research funding and then embraced by the U.S. Air Force Academy to become a fully operational and deployed system. The initial investment of talent and funds by IITA was matched many times over by the Academy once the utility and benefit of the emerging capability became apparent. Yet, the investment by the Academy would not have happened without IITA's vision and commitment for the project.

About the Author

Dr. Steven M. Hadfield is an Associate Professor of Computer Science at the U.S. Air Force Academy. A retired Lieutenant Colonel in the U.S. Air Force, Dr. Hadfield earned his doctorate in computer science at the University of Florida in 1994, his masters in information systems from the Air Force Institute of Technology in 1982, and his bachelors of science degree in mathematics and economics from Tulane University in 1981. He was the first recipient of the IITA Outstanding Researcher Award in 2004. His prior involvement with IITA included the Operational Testing and Evaluation Support Tool (OPS TEST) project which provided training and standardization and evaluation testing for the Cheyenne Mountain Operations Center, 14th Air Force, and the 20th Air Force.

Comments pertaining to this report are invited and should be directed to:

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The Institute for Information Technology Applications (IITA) was formed in 1998 to provide a means to research and investigate new applications of information technology. The Institute encourages research in education and applications of the technology to Air Force problems that have a policy, management, or military importance. Research grants enhance professional development of researchers by providing opportunities to work on actual problems and to develop a professional network.

Sponsorship for the Institute is provided by the Assistant Secretary of the Air Force (Acquisition), the Air Force Office of Scientific Research, and the Dean of Faculty at the U.S. Air Force Academy. IITA coordinates a multidisciplinary approach to research that incorporates a wide variety of skills with cost-effective methods to achieve significant results. Proposals from the military and academic communities may be submitted at any time since awards are made on a rolling basis. Researchers have access to a highly flexible laboratory with broad bandwidth and diverse computing platforms.

To explore multifaceted topics, the Institute hosts single-theme conferences to encourage debate and discussion on issues facing the academic and military components of the nation. More narrowly focused workshops encourage policy discussion and potential solutions. IITA distributes conference proceedings and other publications nation-wide to those interested or affected by the subject matter.